

What is claimed is:

1. A manifold for a fuel cell system, comprising:
 - a manifold body;
 - a plurality of first ports in the manifold body, for connecting to fuel cell peripherals;
 - a plurality of second ports in the manifold body, for connecting to a fuel cell stack; and
 - a plurality of fluid passages within the manifold providing communication between respective ones of the first ports and respective ones of the second ports, whereby, in use, the fluid passages communicate fluids between the fuel cell stack and fuel cell peripherals.
2. A manifold for a fuel cell system as claimed in claim 1,
 - wherein the manifold body comprises a plurality of layers juxtaposed together, wherein each layer has a plurality of ports and a plurality of fluid passages providing communication between the respective ones of the plurality of ports of the corresponding layer, wherein complementary pairs of ports align and face one another and at least one layer forms an external layer including a plurality of ports forming said first and second ports.
3. A manifold for a fuel cell system as claimed in claim 2,
 - wherein the manifold body comprises:
 - a first plate layer, including said plurality of first ports;
 - a second plate layer, including said plurality of second ports;
 - a third plate layer sandwiched between the first and second plate layers including, a plurality of third ports and a plurality of fluid passages therein, with said plurality of fluid passages providing communication between said third ports, and with the third ports being aligned and in communication with respective ones of the said first and second ports.

4. A manifold for a fuel cell system as claimed in claim 3, wherein the said third plate layer further comprises a plurality of plate layers , each of which has a plurality of ports and a plurality of fluid passages providing communication between the ports thereof, with said plurality of ports of each plate layer of the third plate layer being aligned with and in communication with the corresponding ports of an adjacent plate layer.
5. A manifold for a fuel cell system as claimed in claim 2, wherein the manifold body comprises:
 - a first plate layer, including said plurality of first ports;
 - a second plate layer, including said plurality of second ports; a plurality of third ports; and a plurality of fluid passages that communicate between said second and third ports; wherein the first ports extend through the first plate layer and each first port has two open ends, one being for a fuel cell peripheral and the other being aligned with and in communication with a corresponding third port.
6. A manifold for a fuel cell system as claimed in any of the claims 2 to 5, wherein the manifold body is formed by compressing the said layers one on top of the other together.
7. A manifold as claimed in any one of claims 2 to 5; wherein the manifold is integrally formed by one of casting and molding.
8. A manifold for a fuel cell system as claimed in any of the claims 1 to 5, wherein the fluid passages are formed using a method selected from the group comprising melting, etching and milling.
9. A manifold for a fuel cell system as claimed in any of the claims 2 to 5, wherein a sealing means is provided between each pair of the said layers.

10. A manifold for a fuel cell system as claimed in claim 1, wherein sealing means are provided around the said ports for connection to fuel cell peripherals and to a fuel cell stack.
11. A manifold for a fuel cell system as claimed in any of the claims 1 to 5, wherein the manifold body is formed from a polymer material chosen from the group comprising, GE noryl, and EN265.
12. A manifold for a fuel cell system as claimed in any of the claims 1 to 5, which further includes coolant fluid passages within the manifold body.
13. A fuel cell system comprising, a fuel cell stack including:
at least one fuel cell and having a cathode inlet and a cathode outlet for an oxide, an anode inlet and an anode outlet for a fuel gas, and a coolant inlet and a coolant outlet;
a manifold having ports connected to the cathode inlet, the cathode outlet, the anode inlet, the anode outlet, the coolant inlet, and the coolant outlet of the fuel cell stack;
a plurality of additional ports including at least a port for an oxidant inlet, a port for a fuel gas inlet, and inlet and outlet ports for the coolant;
and
a plurality of peripheral devices connected to the additional ports of the manifold.
14. A fuel cell system as claimed in Claim 13, wherein the peripheral devices include at least two heat exchangers, and wherein the manifold includes a coolant inlet path, a coolant return path, and a port providing a coolant inlet and connected through said coolant inlet path to said port connected to the coolant inlet of the fuel cell stack, and wherein said port connect to the coolant outlet of the manifold is connected through said coolant return path to a port of the manifold providing a coolant outlet of the manifold, and wherein the coolant return path includes connections to said at least two heat exchangers, whereby coolant flows through said at least two heat exchangers.

15. A fuel cell system as claimed in Claim 14, wherein said set of at least two heat exchangers include an oxidant heat exchanger, wherein the oxidant inlet is connected by the manifold through the oxidant heat exchanger to the cathode inlet of the fuel cell stack, and wherein the manifold provides a connection between the cathode outlet of the fuel cell stack to the surrounding environment.
16. A fuel cell system as claimed in Claim 15, wherein the peripheral devices include an oxidant humidifier, and wherein manifold provides for oxidant to flow through the oxidant heat exchanger and the oxidant humidifier to the cathode inlet.
17. A fuel cell system as claimed in Claim 15, wherein the peripheral devices include a fuel gas humidifier, and wherein the fuel gas inlet is connected by the manifold through the fuel gas humidifier to the anode inlet of the fuel cell stack, and wherein the manifold includes a fuel gas outlet port and a connection between the anode outlet and the fuel gas outlet port.
18. The fuel cell system as claimed in Claim 17, wherein the peripheral devices include a fuel gas heat exchanger, and wherein the manifold provides for fuel gas to flow through the fuel gas humidifier and the fuel gas heat exchanger to the anode inlet.
19. The fuel cell system as claimed in Claim 18, wherein the manifold includes an inlet for deionized water and an outlet for deionized water, and wherein the manifold provides passages between the deionized water inlet and outlet passing through the fuel gas and air humidifiers.